



STIC Search Report

EIC 1700

STIC Database Tracking Number: 164575

**TO: Helen Pezzuto
Location: REM 10A29
Art Unit : 1713
September 19, 2005**

Case Serial Number: 10/671791

**From: Kathleen Fuller
Location: EIC 1700
REMSSEN 4B28
Phone: 571/272-2505
Kathleen.Fuller@uspto.gov**

Search Notes



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
- Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

- Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

* PLEASE Give REQUEST To Mr. K. Fuller. Thanks!
Access DB# 164575

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: HELEN PEZZUTO Examiner #: 70058 Date: 9/2/05
Art Unit: 1713 Phone Number: 302-1108 Serial Number: 10/671,791
Mail Box and Bldg/Room Location: REM-10A29 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: SEE ATTACHED

Inventors (please provide full names): ↓

Earliest Priority Filing Date: 9/30/02

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search tertiary (meth)acrylate compound(1)
defined in cl. 1 (also see p.6. attached).
Then search polymer derived therefrom(1a)
in cl. 2 with additional recurring units
(2a) & (3a) in cls. 3-4

Key words (utility)

photo resist / resist, photolithography, photo
acid generator. many Thanks!

STAFF USE ONLY

Searcher: K. Fuller
Searcher Phone #: _____
Searcher Location: _____
Date Searcher Picked Up: _____
Date Completed: 9/19/05
Searcher Prep & Review Time: 30
Clerical Prep Time: _____
Online Time: 15

Type of Search

NA Sequence (#) _____
AA Sequence (#) _____
Structure (#) 1
Bibliographic _____
Litigation _____
Fulltext _____
Patent Family _____
Other _____

Vendors and cost where applicable

STN ✓
Dialog _____
Questel/Orbit _____
Dr.Link _____
Lexis/Nexis _____
Sequence Systems _____
WWW/Internet _____
Other (specify) _____

=> FILE REG

FILE 'REGISTRY' ENTERED AT 12:22:11 ON 19 SEP 2005

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STRUCTURE FILE UPDATES: 18 SEP 2005 HIGHEST RN 863382-78-9

DICTIONARY FILE UPDATES: 18 SEP 2005 HIGHEST RN 863382-78-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> FILE HCAPLU

FILE 'HCAPLUS' ENTERED AT 12:22:15 ON 19 SEP 2005

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FILE COVERS 1907 - 19 Sep 2005 VOL 143 ISS 13

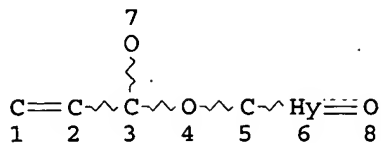
FILE LAST UPDATED: 18 Sep 2005 (20050918/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE

L5 STR



NODE ATTRIBUTES:

NSPEC IS RC AT 5
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED
 ECOUNT IS X1 O AT 6

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

L7 1497 SEA FILE=REGISTRY SSS FUL L5
 L11 2115 SEA FILE=REGISTRY ABB=ON 318.4.1/RID
 L12 21 SEA FILE=REGISTRY ABB=ON L7 AND L11
 L13 7 SEA FILE=HCAPLUS ABB=ON L12

← ring identifier for desired ring
 21

=> D L13 BIB ABS IND HITSTR 1-7

L13 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:322990 HCAPLUS

DN 142:363804

TI Lactone-containing polymers, resist materials containing them with low line edge roughness and excellent resolution, etching resistance, and thermal stability, and pattern formation using them

IN Funatsu, Akiyuki; Nishi, Tsunehiro; Nagura, Shigehiro

PA Shin-Etsu Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 58 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005097533	A2	20050414	JP 2004-144569	20040514
	US 2005089796	A1	20050428	US 2004-933013	20040901
PRAI	JP 2003-311056	A	20030903		
	JP 2004-144569	A	20040514		

AB The polymers, useful for excimer laser photolithog. or electron beam lithog., have repeating units CH₂CR₁(CO₂Z), CH₂CR₃(CO₂Y), and CH₂CR₄(CO₂X) (R₁,3,4 = H, Me; X = lactone-containing group; Y = 3-OH-5-R₅-6-R₆-adamantyl; Z = 1-R₂-cyclopentyl, 1-R₂-cyclohexyl; R₂ = C₁-12 linear, branched, or cyclic alkyl; R₅,6 = H, OH).

IC ICM C08F220-28

ICS G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

ST lactone polymer photoresist excimer laser lithog; electron beam resist ethylcyclopentyl methacrylate copolymer

IT Electron beam lithography
 Electron beam resists
 Photolithography
 Photoresists
 (lactone-containing polymers for resists with low line edge roughness and good resolution, etching resistance, and thermal stability)

IT 795278-24-9P 849023-40-1P 849023-53-6P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (lactone-containing polymers for resists with low line edge roughness and good resolution, etching resistance, and thermal stability)

IT 845521-69-9 849023-18-3 849023-19-4 849023-20-7
 849023-21-8 849023-22-9 849023-23-0 849023-24-1 849023-25-2
 849023-26-3 849023-27-4 849023-28-5 849023-29-6 849023-30-9
 849023-31-0 849023-32-1 849023-34-3 849023-35-4 849023-36-5
 849023-37-6 849023-38-7 849023-39-8 849023-41-2 849023-42-3
 849023-43-4 849023-44-5 849023-45-6 849023-46-7 849023-47-8
 849023-48-9 849023-49-0 849023-50-3 849023-51-4 849023-52-5
 849023-55-8 849023-57-0 849023-58-1 849023-60-5
 849023-61-6 849023-63-8 849023-65-0 849023-66-1 849023-68-3
 849023-70-7 849023-72-9 849023-74-1 849060-37-3 849060-39-5
 RL: TEM (Technical or engineered material use); USES (Uses)
 (lactone-containing polymers for resists with low line edge roughness and good resolution, etching resistance, and thermal stability)

IT 849023-19-4 849023-20-7 849023-57-0
 849023-58-1
 RL: TEM (Technical or engineered material use); USES (Uses)
 (lactone-containing polymers for resists with low line edge roughness and good resolution, etching resistance, and thermal stability)

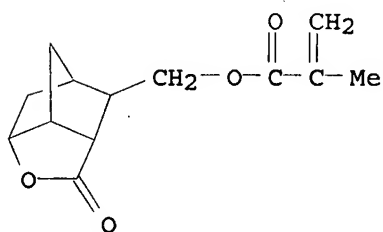
RN 849023-19-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
 (hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)methyl
 2-methyl-2-propenoate and 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 468730-90-7

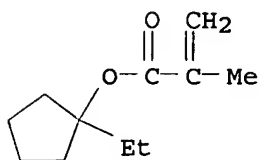
CMF C13 H16 O4



CM 2

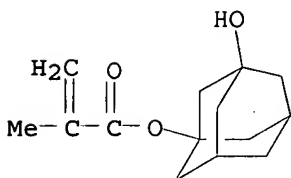
CRN 266308-58-1

CMF C11 H18 O2



CM 3

CRN 115372-36-6
CMF C14 H20 O3

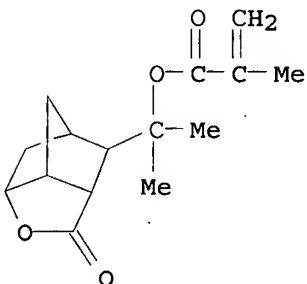


RN 849023-20-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
1-(hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)-1-methylethyl
2-methyl-2-propenoate and 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

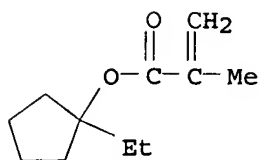
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CRN 678989-84-9
CMF C15 H20 O4



CM 2

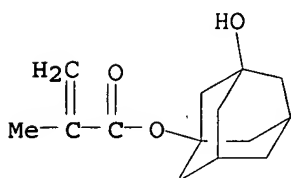
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CMF C11 H18 O2



CM 3

CRN 115372-36-6

CMF C14 H20 O3



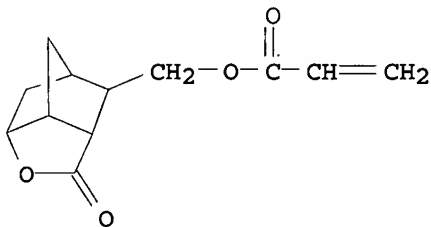
RN 849023-57-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
 (hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)methyl
 2-propenoate and 3-hydroxytricyclo[3.3.1.1.3,7]dec-1-yl 2-propenoate (9CI)
 (CA INDEX NAME)

CM 1

CRN 468730-91-8

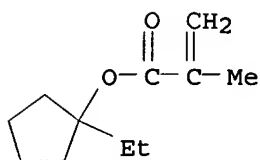
CMF C12 H14 O4



CM 2

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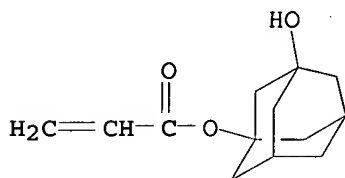
CMF C11 H18 O2



CM 3

CRN 216581-76-9

CMF C13 H18 O3



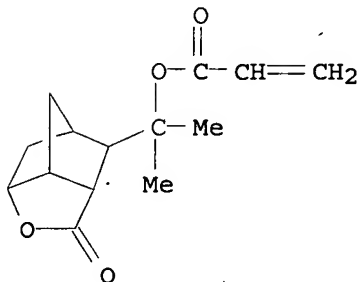
RN 849023-58-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
 1-(hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)-1-methylethyl
 2-propenoate and 3-hydroxytricyclo[3.3.1.1.3,7]dec-1-yl 2-propenoate (9CI)
 (CA INDEX NAME)

CM 1

CRN 678989-85-0

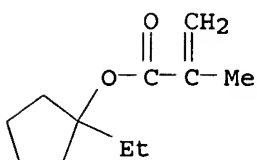
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CM 2

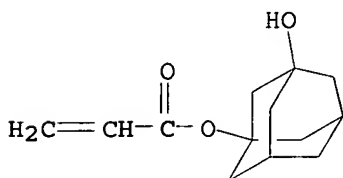
CRN 266308-58-1

CMF C11 H18 O2



CM 3

CRN 216581-76-9
CMF C13 H18 O3



L13 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:13465 HCAPLUS

DN 142:103165

TI Acrylic polymers and their radiation-sensitive compositions for manufacture of semiconductor devices

IN Nishimura, Isao; Okamoto, Kenji

PA JSR Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 39 pp.

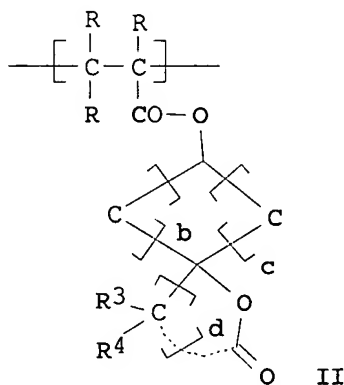
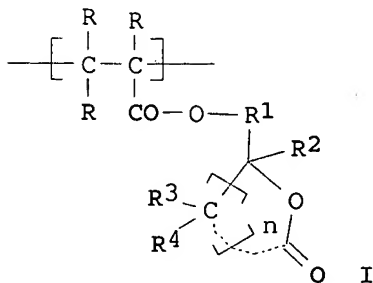
CODEN: JKXXAF

DT Patent

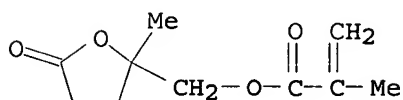
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PRAI	JP 2003-168770		20030613		
GI					

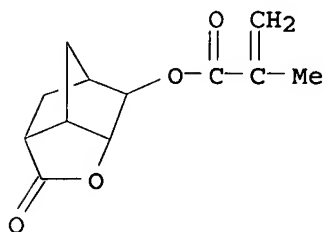


- AB The acrylic polymers have repeating units having acid-dissociable groups derived from olefin-terminated carboxylic acids and OH-containing lactones I and/or II [R = H, Me, F3C; R1 = C1-4 alkylene or alkyleneoxy; R2 = C1-10 normal or branched alkyl, C3-20 cycloalkyl; R3, R4, R9, R10, R5-R8 = H, F, OH, C1-15 normal or branched alkyl, C3-20 cycloalkyl, perfluoroalkyl, alkoxy, aryl, aryloxy, trialkylsilyl, alkyloxycarbonyl; R3 and R4, R9 and R10, or R5-R8 may form ring; R1-R10 may be substituted; a, d = 2, 3; b, c = 1-4]. The compns. comprise the polymers and radiation-sensitive acid generators. The compns. show high transparency for radiation, good dry etching resistance, and high solvent solubility
- IC ICM C08F220-26
ICS G03F007-039; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
- ST acrylic polymer radiation sensitive resist semiconductor; far UV resist acrylic polymer semiconductor; lactone acrylic polymer radiation sensitive resist
- IT Semiconductor device fabrication
(acrylic polymers for radiation-sensitive resists with good solvent solubility)
- IT Positive photoresists
(far-UV; acrylic polymers for radiation-sensitive resists with good solvent solubility)
- IT 817172-01-3P 817172-03-5P 817172-05-7P
817172-06-8P 817172-08-0P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic polymers for radiation-sensitive resists with good solvent solubility)
- IT 817172-01-3P 817172-03-5P 817172-05-7P
817172-06-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic polymers for radiation-sensitive resists with good solvent solubility)
- RN 817172-01-3 HCAPLUS
- CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and (tetrahydro-2-methyl-5-oxo-2-furanyl)methyl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)
- CM 1
- CRN 817172-00-2
CMF C10 H14 O4



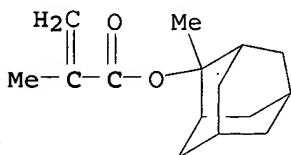
CM 2

CRN 254900-07-7
CMF C12 H14 O4



CM 3

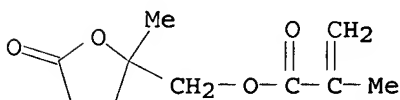
CRN 177080-67-0
CMF C15 H22 O2



RN 817172-03-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 1-methylcyclopentyl 2-methyl-2-propenoate and (tetrahydro-2-methyl-5-oxo-2-furanyl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

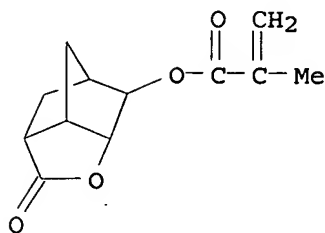
CM 1

CRN 817172-00-2
CMF C10 H14 O4



CM 2

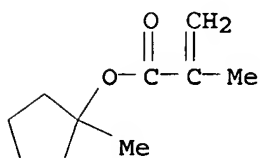
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CMF C12 H14 O4



CM 3

CRN 178889-45-7

CMF C10 H16 O2



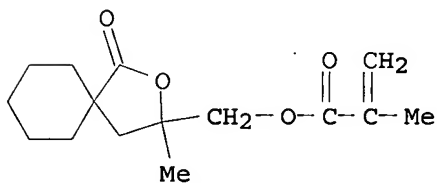
RN 817172-05-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with (3-methyl-1-oxo-2-oxaspiro[4.5]dec-3-yl)methyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 817172-04-6

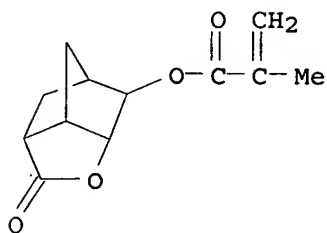
CMF C15 H22 O4



CM 2

CRN 254900-07-7

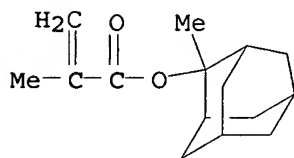
CMF C12 H14 O4



CM 3

CRN 177080-67-0

CMF C15 H22 O2



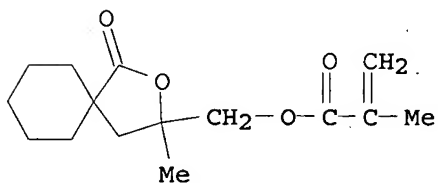
RN 817172-06-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 1-methylcyclopentyl 2-methyl-2-propenoate and (3-methyl-1-oxo-2-oxaspiro[4.5]dec-3-yl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM / 1

CRN 817172-04-6

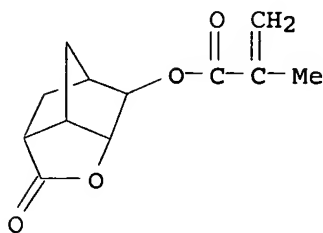
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CM 2

CRN 254900-07-7

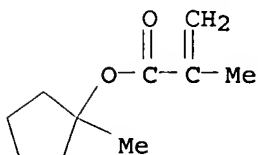
CMF C12 H14 O4



CM 3

CRN 178889-45-7

CMF C10 H16 O2



L13 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:305409 HCAPLUS

DN 140:329543

TI Lactone-containing tertiary (meth)acrylates, their polymers, resists containing the polymers, and pattern forming process

IN Watanabe, Takeshi; Kaneo, Takeshi; Hasegawa, Koji

PA Shin-Etsu Chemical Industry Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 30 pp.

CODEN: JKXXAF

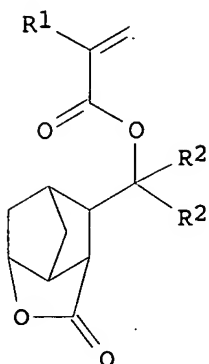
DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 2004115486	A2	20040415	JP 2002-285175	20020930
PRAI	JP 2002-285175		20020930		
OS	MARPAT 140:329543				
GI					

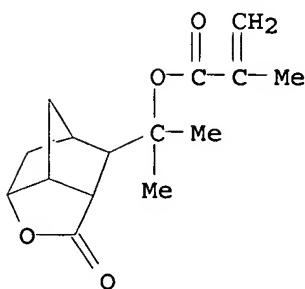
Applicants



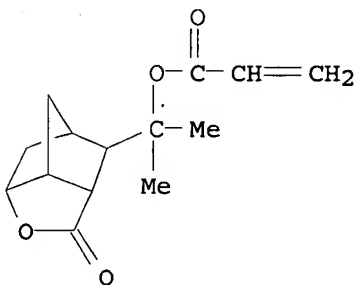
I

- AB The (meth)acrylates are I [R1 = H, Me; R2 = C1-10 (cyclo)hydrocarbyl; two R2 may form ring]. In the process, the resists are exposed to radiation at ≤ 300 nm or electron beam. The resists show good far-UV transparency and dry etching resistance, and produce high-resolution submicron patterns.
- IC ICM C07D307-00
ICS C08F020-28; G03F007-039
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 27, 35, 38
- ST lactone tertiary methacrylate far UV resist; electron beam resist lactone tertiary acrylate; polymethacryloyloxymethylethylnorbornanecarbolactone submicron excimer laser lithog; far UV lithog lactone acrylate dry etching resistance
- IT Photoresists
(UV, far-UV; manufacture of lactone-containing tertiary (meth)acrylates for polymers as far-UV- or electron-beam-sensitive resists showing dry etching resistance)
- IT Electron beam resists
(manufacture of lactone-containing tertiary (meth)acrylates for polymers as far-UV- or electron-beam-sensitive resists showing dry etching resistance)
- IT Photolithography
(submicron UV, far-UV; manufacture of lactone-containing tertiary (meth)acrylates for polymers as far-UV- or electron-beam-sensitive resists showing dry etching resistance)
- IT Electron beam lithography
(submicron; manufacture of lactone-containing tertiary (meth)acrylates for polymers as far-UV- or electron-beam-sensitive resists showing dry etching resistance)
- IT 678989-82-7P 678989-84-9P 678989-85-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(manufacture of lactone-containing tertiary (meth)acrylates for polymers as far-UV- or electron-beam-sensitive resists showing dry etching resistance)
- IT 678989-87-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of lactone-containing tertiary (meth)acrylates for polymers as far-UV- or electron-beam-sensitive resists showing dry etching resistance)

- IT 814-68-6, Acryloyl chloride 920-46-7, Methacryloyl chloride
678992-76-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(manufacture of lactone-containing tertiary (meth)acrylates for polymers as far-UV- or electron-beam-sensitive resists showing dry etching resistance)
- IT 678989-84-9P 678989-85-0P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(manufacture of lactone-containing tertiary (meth)acrylates for polymers as far-UV- or electron-beam-sensitive resists showing dry etching resistance)
- RN 678989-84-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-(hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)-1-methylethyl ester (9CI) (CA INDEX NAME)



- RN 678989-85-0 HCAPLUS
CN 2-Propenoic acid, 1-(hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)-1-methylethyl ester (9CI) (CA INDEX NAME)

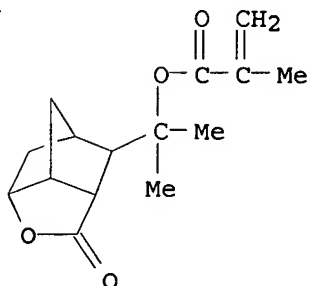


- IT 678989-87-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of lactone-containing tertiary (meth)acrylates for polymers as far-UV- or electron-beam-sensitive resists showing dry etching resistance)
- RN 678989-87-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 1-(hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)-1-methylethyl 2-methyl-2-propenoate and 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 678989-84-9

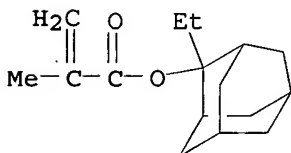
CMF C15 H20 O4



CM 2

CRN 209982-56-9

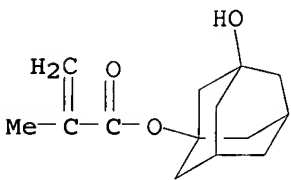
CMF C16 H24 O2



CM 3

CRN 115372-36-6

CMF C14 H20 O3



L13 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:855512 HCAPLUS

DN 139:343483

TI Radiation-sensitive resin composition

IN Nishimura, Yukio; Ishii, Hiroyuki; Yamamoto, Masafumi; Nishimura, Isao

PA Japan

SO U.S. Pat. Appl. Publ., 26 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

PATENT NO.

KIND

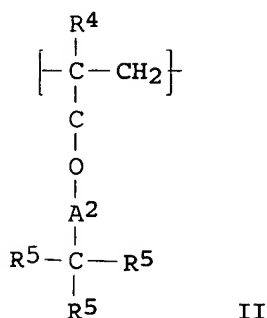
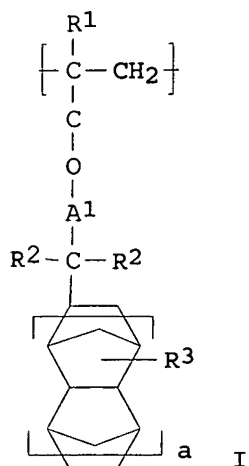
DATE

APPLICATION NO.

DATE

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

PI	US 2003203309	A1	20031030	US 2003-386707	20030313
	JP 2003337419	A2	20031128	JP 2003-66164	20030312
PRAI	JP 2002-71696	A	20020315		
GI					



AB A radiation-sensitive resin composition suitable as a chemical amplified resist useful for microfabrication comprises: (A) a resin insol. or scarcely soluble in alkali, but becomes alkali soluble by the action of an acid and (B) a photoacid generator. The resin comprises at least one recurring unit of the following formula I (R1 = H, methyl; A1 = single bond, X1-COO-; X1 = methylene, alkylene with less with 10 carbon atoms; R2 = C1-6 alkyl; n = 0, 1; R3 = H, C1-6 alkyl, oxygen containing group), II (R4 = H, methyl; A2 = single bond, X2-COO-; X2 = methylene, alkylene with less with 10 carbon atoms; R5 = C1-4 alkyl, C4-20 monovalent alicycli hydrocarbon group).

IC ICM G03F007-039

INCL 430270100; 430921000; 430925000; 430945000; 430966000; 430942000; 430323000; 430326000

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38, 76

ST microfabrication photoresist radiation sensitive resin compn

IT Photolithography

Photoresists

(radiation-sensitive resin composition for)

IT 144317-44-2, Triphenylsulfonium nonafluoro-n-butanesulfonate 209482-18-8 330576-58-4

RL: TEM (Technical or engineered material use); USES (Uses)

(acid generator; radiation-sensitive resin composition for microfabrication containing)

IT 617711-84-9P 617711-85-0P 617711-86-1P 617711-87-2P

617711-89-4P 617711-90-7P 617711-91-8P

617711-93-0P 617711-95-2P 617711-96-3P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(radiation-sensitive resin composition for microfabrication containing)

IT 617711-89-4P 617711-90-7P 617711-91-8P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(radiation-sensitive resin composition for microfabrication containing)

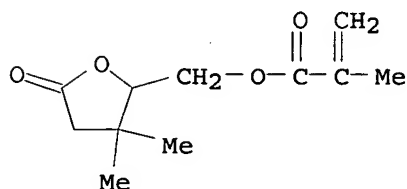
RN 617711-89-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
 hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl
 2-methyl-2-propenoate and (tetrahydro-3,3-dimethyl-5-oxo-2-furanyl)methyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 379257-69-9

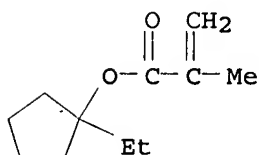
CMF C11 H16 O4



CM 2

CRN 266308-58-1

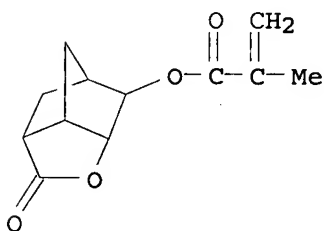
CMF C11 H18 O2



CM 3

CRN 254900-07-7

CMF C12 H14 O4



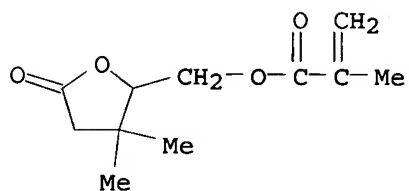
RN 617711-90-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
 hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl
 2-methyl-2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl
 2-methyl-2-propenoate and (tetrahydro-3,3-dimethyl-5-oxo-2-furanyl)methyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 379257-69-9

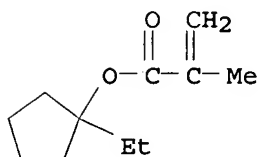
CMF C11 H16 O4



CM 2

CRN 266308-58-1

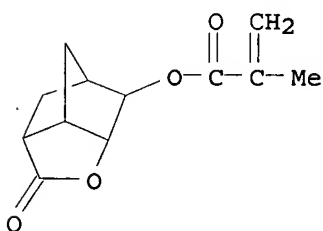
CMF C11 H18 O2



CM 3

CRN 254900-07-7

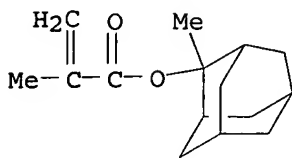
CMF C12 H14 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



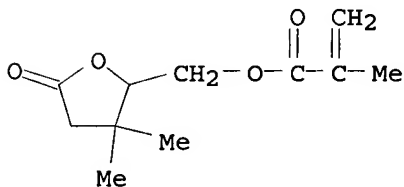
RN 617711-91-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, bicyclo[2.2.1]hept-2-yl ester, polymer with 1-ethylcyclopentyl 2-methyl-2-propenoate, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-methyl-2-propenoate and (tetrahydro-3,3-dimethyl-5-oxo-2-furanyl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 379257-69-9

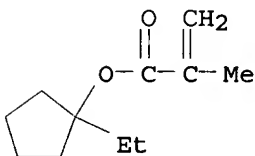
CMF C11 H16 O4



CM 2

CRN 266308-58-1

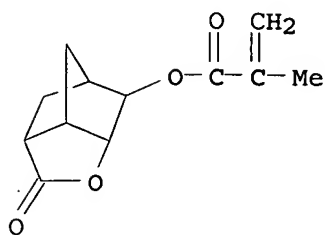
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CM 3

CRN 254900-07-7

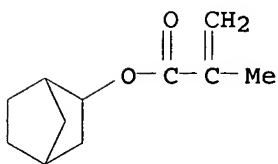
CMF C12 H14 O4



CM 4

CRN 29753-02-4

CMF C11 H16 O2



L13 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:168549 HCAPLUS

DN 138:212799

TI Vinyl monomers, their polymers for chemically amplified DUV resists compositions, and their patterning

IN Maeda, Katsumi; Nakano, Kaichiro

PA NEC Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 19 pp.

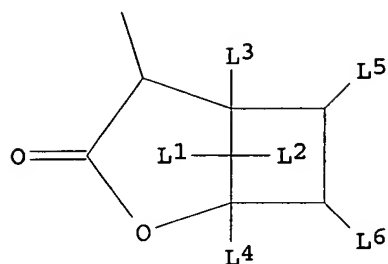
CODEN: JKXXAF

DT Patent

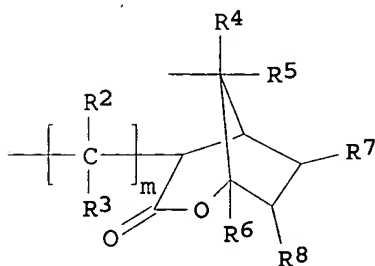
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003064131	A2	20030305	JP 2001-394173	20011226
	JP 3642316	B2	20050427		
	US 2003097008	A1	20030522	US 2002-167499	20020613
	US 6639084	B2	20031028		
	US 2003224297	A1	20031204	US 2003-463571	20030618
	US 6710188	B2	20040323		
PRAI	JP 2001-181716	A	20010615		
	JP 2001-394173	A	20011226		
	US 2002-167499	A3	20020613		
OS	MARPAT 138:212799				
GI					



I



II

- AB The vinyl monomers bear 3-oxo-4-oxabicyclo[3.2.1]octan-2-yl groups I (L1-L6 = H, C1-8 alkyl; L5 and L6 may be C1-10 alkylene being linked together and forming a ring). Also claimed are vinyl monomers substituted with groups bearing bridged alicyclic δ lactone structures II (R2, R3 = H, C1-4 alkyl; R4-R6 = H, Me; R7, R8 = H, C1-10 alkylene which are linked together and form ring; n = 0, 1). The vinyl monomers have ≥ 1 structures selected from (derivs. of) ethylene, vinyl chloride, styrene, acrylonitrile, (meth)acrylates, and norbornene carboxylates. The DUV resist compns. containing (A) copolymers of I or copolymers of II and (B) photoacid generators at ratio B/(A + B) = 0.2-30% are applied on substrates, exposed to 180-220 nm light, preferably ArF excimer laser light, baked, and developed to give patterns. The resist compns. show good transmittance to ≤ 220 -nm light, high etching resistance, and high adhesion strength to substrates.
- IC ICM C08F020-28
ICS C07D311-00; C08F032-04; G03F007-039; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 37, 38
- ST oxabicyclooctanyl vinyl polymer pos DUV resist; chem amplified photoresist
oxabicyclooctanyl vinyl polymer; bridged alicyclic lactone vinyl polymer
DUV resist
- IT Positive photoresists
(substituted vinyl monomers and their polymers for pos. DUV resists compns.)
- IT 55764-18-6P 500101-63-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(intermediate in monomer preparation; substituted vinyl monomers and their polymers for pos. DUV resists compns.)
- IT 500101-64-4P 500101-65-5P 500101-66-6P 500101-70-2P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; substituted vinyl monomers and their polymers for pos. DUV resists compns.)

IT 144317-44-2, Triphenylsulfonium nonaflate
RL: CAT (Catalyst use); USES (Uses)
(photoacid generator; substituted vinyl monomers and their polymers for pos. DUV resists compns.)

IT 500101-71-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(starting material in monomer preparation; substituted vinyl monomers and their polymers for pos. DUV resists compns.)

IT 542-92-7, Cyclopentadiene, reactions 13380-94-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material in monomer preparation; substituted vinyl monomers and their polymers for pos. DUV resists compns.)

IT 500101-72-4P 500101-73-5P
RL: IMF (Industrial manufacture); PREP (Preparation)
(substituted vinyl monomers and their polymers for pos. DUV resists compns.)

IT 500101-67-7P
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(substituted vinyl monomers and their polymers for pos. DUV resists compns.)

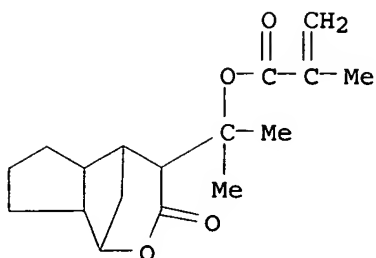
IT 500101-68-8P 500101-69-9P 500145-67-5P 500145-69-7P
500145-72-2P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(substituted vinyl monomers and their polymers for pos. DUV resists compns.)

IT 500101-67-7P
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(substituted vinyl monomers and their polymers for pos. DUV resists compns.)

RN 500101-67-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 1-methyl-1-(octahydro-3-oxo-1,5-methano-1H-cyclopent[c]oxepin-4-yl)ethyl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

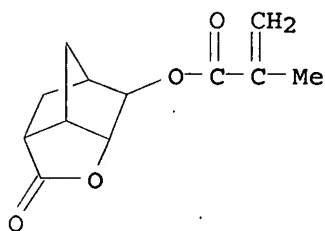
CRN 500101-64-4
CMF C17 H24 O4



CM 2

CRN 254900-07-7

CMF C12 H14 O4



IT 500145-69-7P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(substituted vinyl monomers and their polymers for pos. DUV resists compns.)

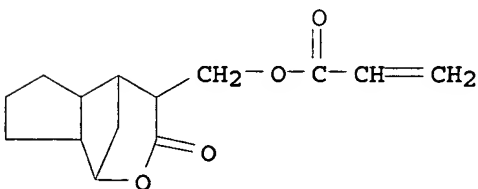
RN 500145-69-7 HCAPLUS

CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or 7)-[(1-oxo-2-propenyl)oxy]-, 1,1-dimethylethyl ester, polymer with hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-propenoate and (octahydro-3-oxo-1,5-methano-1H-cyclopent[c]oxepin-4-yl)methyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 500101-66-6

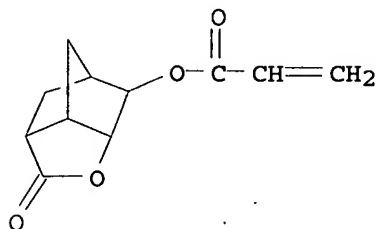
CMF C14 H18 O4



CM 2

CRN 242129-35-7

CMF C11 H12 O4

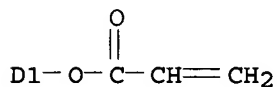
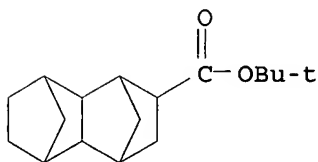


CM 3

CRN 217652-52-3

CMF C20 H28 O4

CCI IDS



L13 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:778739 HCAPLUS

DN 137:295912

TI Lactone ring-containing (meth)acrylate and polymer thereof for photoresist compositions

IN Watanabe, Takeru

PA Shin-Etsu Chemical Co., Ltd., Japan

SO U.S. Pat. Appl. Publ., 9 pp.

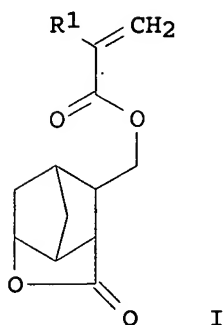
CODEN: USXXCO

DT Patent

LA English

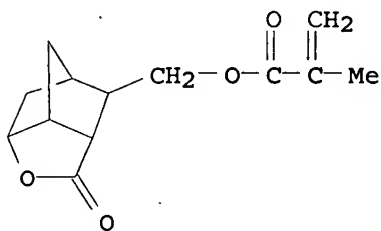
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	US 2002147291	A1	20021010	US 2002-106459	20020327
	US 6517994	B2	20030211		
	JP 2003002883	A2	20030108	JP 2002-81323	20020322
	TW 572903	B	20040121	TW 2002-91107241	20020410
PRAI	JP 2001-111616	A	20010410		
GI					

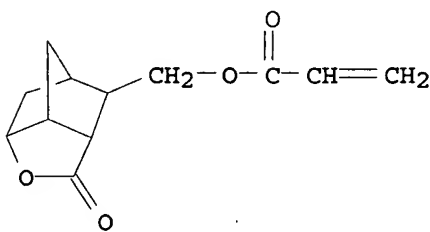


- AB The invention discloses a novel polymerizable (meth)acrylate ester compound having a lactone ring structure represented by the general formula I in which R1 is a hydrogen atom or a Me group. A synthetic route for the preparation of this (meth)acrylate ester compound is described. This monomeric compound can readily be polymerized into a (co)polymer which is useful as a base resinous ingredient in a chemical amplified photoresist composition having advantages in respects of high transparency to short-wavelength UV light for patterning exposure and excellent resistance against dry etching in addition to the high sensitivity, fine pattern resolution and excellent adhesion to the substrate surface.
- IC ICM C08F124-00
ICS C07D037-93
- INCL 526273000
- CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 74
- ST lactone acrylic photoresist compn
- IT Photoresists
(lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)
- IT 5411-71-2P 70347-47-6P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)
- IT 814-68-6, Acryloyl chloride 826-62-0, 5-Norbornene-2,3-dicarboxylic acid anhydride 920-46-7, Methacryloyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)
- IT 468730-90-7P 468730-91-8P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)
- IT 468730-92-9P 468730-93-0P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoresist component; lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)
- IT 75-59-2, Tetramethylammonium hydroxide 102-82-9, Tributylamine 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoresist component; lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)

- IT 97-64-3, Ethyl lactate 111-96-6, Diethyleneglycol dimethyl ether
1569-02-4, 1-Ethoxy-2-propanol
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)
- IT 84540-57-8, Propyleneglycol monomethyl ether acetate
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(solvent; lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)
- IT 468730-90-7P 468730-91-8P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(monomer; lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)
- RN 468730-90-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, (hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)methyl ester (9CI) (CA INDEX NAME)



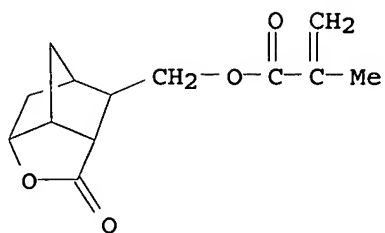
- RN 468730-91-8 HCAPLUS
CN 2-Propenoic acid, (hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)methyl ester (9CI) (CA INDEX NAME)



- IT 468730-92-9P 468730-93-0P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photoresist component; lactone ring-containing (meth)acrylate and polymer thereof for photoresist composition)
- RN 468730-92-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, (hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)methyl ester, polymer with octahydro-5-methyl-4,7-methano-1H-inden-5-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

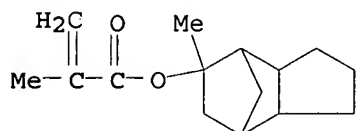
CRN 468730-90-7
CMF C13 H16 O4



CM 2

CRN 280123-21-9

CMF C15 H22 O2



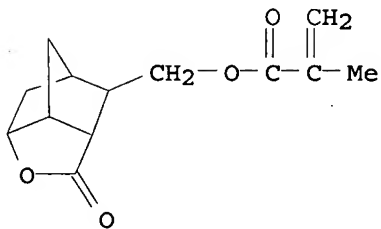
RN 468730-93-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester,
 polymer with (hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-7-yl)methyl 2-methyl-2-propenoate and 2-hydroxyethyl 2-methyl-2-propenoate
 (9CI) (CA INDEX NAME)

CM 1

CRN 468730-90-7

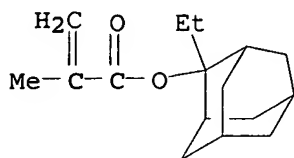
CMF C13 H16 O4



CM 2

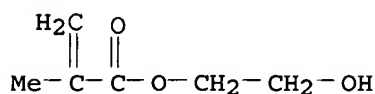
CRN 209982-56-9

CMF C16 H24 O2



CM 3

CRN 868-77-9
CMF C6 H10 O3



L13 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:769998 HCAPLUS

DN 137:302221

TI Deep-UV positive-working photoresist composition showing improved contact
hole resolution and sidelobe suppression

IN Sato, Kenichiro

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 77 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002296782	A2	20021009	JP 2001-101521	20010330
PRAI	JP 2001-101521		20010330		

AB The title pos.-working photoresist composition comprises (A) an acid-decomposable resin comprised of an aliphatic cyclic hydrocarbon structural repeating unit and a crosslinking structural repeating unit -OC(R1)(R2)O- [R1, R2 = H, C1-4-alkyl], and (B) a photoacid generator. The photoresist composition is especially suitable for the photolithog. with the 193 nm ArF excimer laser.

IC ICM G03F007-039

ICS C08K005-00; C08L101-12; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 38, 76

ST pos working photoresist compn contact hole resoln sidelobe suppression;
crosslinking agent pos working photoresist compn photoacid generator

IT Photolithography

(UV; deep-UV pos.-working photoresist composition showing improved contact
hole resolution and side-lobe suppression)

IT Positive photoresists

(chemical amplification; deep-UV pos.-working photoresist composition showing
improved contact hole resolution and side-lobe suppression)

IT Contact holes

Semiconductor device fabrication

(deep-UV pos.-working photoresist composition showing improved contact hole

resolution and side-lobe suppression)

IT 469880-22-6P 469880-24-8P 469880-26-0P 469880-27-1P
 469880-29-3P 469880-31-7P 469880-32-8P 469880-34-0P 469880-35-1P
 469880-36-2P 469880-38-4P 469880-40-8P 469880-41-9P 469880-42-0P
 469880-43-1P 469880-45-3P 469880-47-5P 469880-49-7P 469880-50-0P
 469880-51-1P 469880-53-3P
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (deep-UV pos.-working photoresist composition showing improved contact hole resolution and side-lobe suppression)

IT 66003-78-9 133710-62-0 144089-15-6 144317-44-2 145612-66-4
 206861-54-3 220155-94-2 241806-75-7 258341-99-0 258342-00-6
 258872-05-8 260061-58-3 284474-28-8 301525-08-6 307531-76-6
 307976-40-5 312386-77-9 391232-40-9
 RL: CAT (Catalyst use); USES (Uses)
 (photoacid generator; deep-UV pos.-working photoresist composition showing improved contact hole resolution and side-lobe suppression)

IT 868-77-9, 2-Hydroxyethyl methacrylate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of crosslinking structural unit-containing monomer for pos.-working photoresist composition)

IT 220462-37-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of crosslinking structural unit-containing monomer for pos.-working photoresist composition)

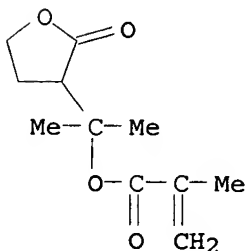
IT 469880-24-8P
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (deep-UV pos.-working photoresist composition showing improved contact hole resolution and side-lobe suppression)

RN 469880-24-8 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with ethylidenebis(oxy-2,1-ethanediyl) di-2-propenoate, 1-methyl-1-(tetrahydro-2-oxo-3-furanyl)ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 469880-23-7

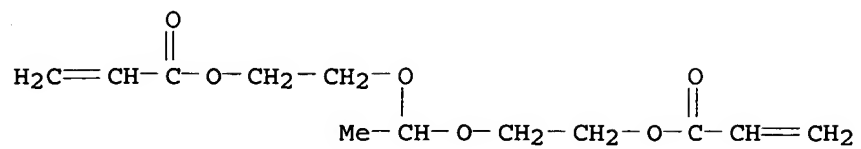
CMF C11 H16 O4



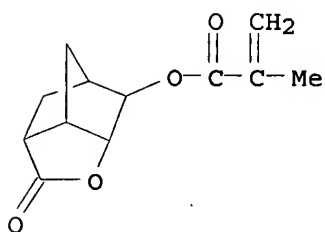
CM 2

CRN 403498-97-5

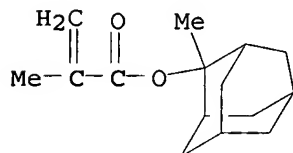
CMF C12 H18 O6



CM 3

CRN 254900-07-7
CMF C12 H14 O4

CM 4

CRN 177080-67-0
CMF C15 H22 O2

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